Volume 18 | Spring 2023



THE COWS AND FISH NEWSLETTER

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Spring Flush: Bursting Buds and Banks

By Lori Goater, Riparian Specialist

The long nights of winter are finally behind us, and the warmth of springtime is breathing life back into the natural world. Water is seeping out from under the snow drifts and saturating the slowly thawing ground, while overflow spills into trickling creeks and swelling rivers. Springtime is a time of melting ice, puddles, and lots of mud. The scene is set for a burst of plant growth that will in turn support a rush of springtime renewal across the whole landscape.



Throughout much of Alberta, water is frozen away in the wintertime and gets scarcer as summer heats up. The moisture of spring offers a golden and short-lived opportunity for plants to grow and reproduce. Native plants are uniquely adapted to thrive by using climate cues to get the most out of the season. Unlike other, less adapted plants, native ones only spring to life when triggered by day length. They are not easily fooled by late winter warm spells, and their early leaves are frost tolerant to manage the risk of late storms.

Well-adapted plants know to hold back a few buds as insurance, in case a first batch of leaves get frozen. Risking the loss of some early leaves is worth it, because being fast off the starting block will pay off in the race to reproduce within Alberta's short growing season.

Plants living on the moist floodplains and banks of watercourses often enjoy the earliest arrival of spring. As these riparian areas thaw, their water sources swell, and nearby plants wake quickly to take advantage of that first drink of water. Springtime torrents of unlocked moisture can also

challenge plants with flooding, erosion, and burial. Certain plants have become specialized to not only survive but to thrive under these challenging conditions. A suite of naturally occurring grasses, forbs, shrubs, and trees make their home along every type of natural shoreline in Alberta. The roots of these plants hold the soggy soils together, stabilizing it against the ebb and flow of water and weather. Riparian-adapted shrubs and trees are particularly good at this and, set the stage for a diverse community of other plants to take root.



In spring, some plants will hold back buds as insurance in case cold weather sets in and freezes the plant

Cottonwoods (riparian poplars) excel in dealing with the springtime trials and tribulations of living alongside streams and rivers in Alberta. These trees manage to survive and thrive thanks largely to their rock-star lifestyle, as they tend to live fast and die young (for a tree). They are typically short-lived trees (usually less than 100 years), so they compensate by growing quickly. They can re-sprout



vigorously and pop up as pioneering seedlings where others were drowned, buried, or washed away.

In March, poplar buds begin to swell with sticky protective sap in anticipation of the moment when their contents will unfold. Bud burst reveals both leaves and flowers. A poplar tree is either male or female, and their flowers emerge in clusters called catkins. The timing of their flowering is precisely synchronized early in the spring. The males release clouds of pollen into the wind in hopes that some of it will find receptive females. The spent, caterpillar-



Cottonwood Trees get an early start in springtime and keep up repeated renewal by moving water

like, male catkins drop off, while pollinated female catkins continue to grow. Hundreds of seeds develop inside a series of capsules that dangle like lines of grapes, with one tree potentially producing tens of millions of seeds. The capsules gradually dry up and crack open as warmer weather arrives in early June, just in time for retreating flood waters to reveal muddy stream banks that make ideal nursery beds for poplar seedlings to sprout.

Cottonwoods are aptly named for the cottony parachute attached to each tiny seed, perfected for floating on the wind and water. Seeds that are lucky enough to land on bare, damp ground will sprout immediately. Their taproot quickly grows to follow retreating moisture as the soil surface dries. By tapping into the dropping water table, these water-loving poplars can thrive even in the driest prairie regions of Alberta. Provided they aren't crowded out by other plants, or knocked down by floods or ice jams in a perpetual cycle of re-sprouting, cottonwood saplings can grow quickly to become reproductively mature trees in as few as 5 or 10 years.

Fast growth is another way that riparian plants stay ahead of constant shoreline and floodplain renewal. Be it next to a calm pond, a trickling creek, or a raging river, various poplars specialize in differently paced lifestyles. Balsam poplar and the closely related narrowleaf cottonwood are particularly good at re-sprouting when toppled by floods or if chewed by beavers. Bits of their

chopped branches can even sprout to life out of churned buried debris. In contrast, the plains cottonwood specializes in spreading its seedlings over the vast beds of sediment left behind by widespread floods, that typically occur along larger rivers. For the plains cottonwood, this opportunity arises only about once every 10 years or more, and even less often when flows are regulated by dams or other flow controls. The strategies that various plant species have help to explain why they grow where they do and why springtime conditions are so key.



Poplar fluff among leaves

Be sure to watch for the rising, slushy waters of the season and take time to marvel at the process of springtime renewal in riparian areas. You may even find new appreciation for ice jams and bootsucking mud, and perhaps even the sticky poplar bud scales and future drifts of June cottonwood seed fluff. Remember, they all play a natural part in the richness of life leading into the glory of summer for years to come.



Emergence

By Amy Berlando, Provincial Riparian Specialist

"For the Homeric Greeks, kleos, fame, was made of song. Vibrations in air contained the measure and memory of a person's life.

To listen was therefore to learn what endures.

I turned my ear to trees, seeking ecological kleos. I found no heroes, no individuals around whom history pivots. Instead, living memories of trees, manifest in their songs, tell of life's community, a net of relations. We humans belong within this conversation, as blood kin and incarnate members. To listen is therefore to hear our voices and those of our family[...]

To listen is therefore to touch a stethoscope to the skin of a landscape, to hear what stirs below"- David George Haskell

After a restful winter sleep, the Earth rolls back the covers and spring emerges. To emerge describes the process of coming forth after a period of unseen growth or dormancy, like a baby emerging from a womb, a seed sprouting through the soil, or even an idea put into action.

The word "Emergence" encompasses the complexity derived from the interaction of parts within a system, describing what the parts can achieve together, that each part could not achieve alone. Beyond the sum of individual parts, endless interactions create new opportunity. Emergence is also fractal. From cellular to celestial, the synergy of connection births new and endless possibility – from cell, to species, to community, to the planet.

Dr. Suzanne Simard, a pioneer in the field of forest ecology, demonstrated through her research on forest communities, it is collaboration and not the commonly held notion of competition, that drives forest productivity. Survival of the fittest has been misinterpreted as self interest, where competition was thought to determine success. However, from her research we learn everything is connected and the pieces working together is what allows these forest systems to thrive. In Simard's work she explored "the wood wide web," the cobwebby linkages of mycorrhizal fungi within the forest floor that connect trees, intertwining their roots, creating buried networks that allow trees to communicate and support one another, like the neural networks in our own bodies. The Mother trees, as she calls the older, larger trees, nurture the young trees, sharing nutrients and knowledge. In this emergent system, the connections between all the parts allows for a strength that is not possible in a silo. Even from death, new possibilities emerge; the fungi decompose the

dead, to provide life, releasing nutrients back into the forest community. Old trees lay down their bodies and from their death, more life emerges.

The notion of individual becomes blurred in forest systems. Take lichen for example, neither plant nor fungi, but another living example of how two different things, algae and fungi, can partner together to make life possible, and in doing so help create the foundation for other beings as they build up living surfaces. Marrying the alchemy of photosynthesis, turning sun into energy, with decomposition, liberating life from death, lichen can live without roots, imbedded in a web of life giving relationships. In the forest, everything has purpose, even the smallest organism or interaction. From the smallest of mosses blanketing the forest floor to the tallest lichen-covered trees in the canopy, everything is connected and contributing.

I find it reassuring to think that under my feet, roots are reaching for one and other.

Intertwined in a net of life-giving support.

I feel held in that strength and grace.

It's magical really, that stirring beneath me in the soil, roots and fungi and a multitude of micro beings are going about their day, making it possible for me to go about my way.

Perhaps this is why we don't need roots to feel rooted - we can experience the strength and stability from being held by the Earth, but also the support and safety of being held within Earth's community.

We humans belong in this net of relations. After all, we breathe with trees and emerge from Earth. From cells to civilization, even though cells are without realization, out of the diversity of cells and individuals emerges society. And, like the trees, fungi and algae, we too are wired for connection. We long for connection. In the Mother Tree, Simard writes, "There is a grace in complexity, in actions cohering, in sum totals. We can find this in ourselves, in what we do alone, but also in what we enact together. Our own roots and systems interlace and tangle, grow into and away from one another and back again in a million subtle moments."

We can learn from trees and forest communities. When we see the forest for more than the trees, the forests teach us that collaboration and deep connection creates community, and in community we create strength. So it isn't individualism, capitalism, or competition, but reciprocity that creates resilience. Each part in the system is held by the others, taking only what is needed, but also giving back when there is enough. In the words of Octavia Butler, "All that you touch you change. All that you change changes you."

We are emergence

We are greater than our parts

We are a part of something whole - from cellular to celestial;

We relate and communicate with every action.

Bones and branches, leaves and lungs, communities connected by bodies and bark.

Cows and Fish



Springtime Vulnerability in Riparian Areas

By Tonya Lwiwski, Riparian Specialist

Springtime. Returning birdsong marks the morning hours, the lengthening daylight and the melting snow are all welcome signs of the end of winter. While this season of rejuvenation makes us want to get outside, spring is also a sensitive time for riparian areas. Before turning those cows out to fresh pasture, or getting out on that early-season hike, here are a few things to consider:

Mind the Mud



An example of pugging and hummocking

Riparian soils become susceptible to compaction during wet seasons, such as in spring. Soils act as a sponge, absorbing water and holding it within the soil, allowing infiltration into the shallow groundwater system. As the spring brings warmer weather, snowmelt finds its way into the warming soils, creating these saturated conditions. Soil compaction such as trailing, rutting, and pugging (deep hoof or foot prints) and hummocking (raised mounds of soil resulting from hoof or foot traffic) during these wet periods often leave a mark on the landscape that lasts long beyond the wetness of the soils. Compaction reduces the soil's ability to absorb water in the future, and the ability for plants to grow.

To decrease the chance of soil compaction in riparian areas, defer grazing in pastures with riparian zones until later in the summer when these soils have a chance to dry out, or incorporate temporary or permanent fencing to exclude livestock from these sensitive areas, while still allowing the use of adjacent uplands. Avoid using riparian areas for recreation, either with motorized vehicles, or even hiking, while soils are wet and sensitive.

Breaking Dormancy

While many people feel more energized in the springtime, plants are also waking up from their

season of slumber and these emerging plants are vulnerable early in the spring time. Before their leaves fully emerge, they rely only on energy stored in their roots for their early growth. If this new growth gets grazed off before they have had a chance to use their new leaves to create new

energy (by way of photosynthesis), these plants have few stores left to create new leaves – and this will severely impact the growth of these plants and subsequent forage availability through the rest of the growing season. Roots are the plant's battery. If you drain the battery by grazing too early, or with heavy grazing and no rest, the plants cannot rebound. This is true of both riparian and non-riparian plants.





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Planning Ahead for a Fall Supper

Late summer and fall can be another sensitive time for riparian plants. When grasses and broadleaved plants have matured or dried off late in the growing season, often the woody vegetation – like shrubs and young trees – become more palatable to livestock. These important riparian plants become susceptible to being over-browsed during these times, and if this occurs long-term, can cause these woody communities to die out. Native woody plants like willows, red-osier dogwood,

saskatoon, chokecherry, and native tree species like aspen and balsam poplar all play an important role in protecting and holding streambanks and shorelines in place with their deep-binding roots.

When we take the time to understand when and why riparian areas are most vulnerable and susceptible, we can take these periods into account in our use and management to ensure that our riparian areas will remain healthy and functional for years to come.



A heavily browsed red-osier dogwood.

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Working With Beavers Website

Working With Beavers is a new website created in partnership with the <u>Miistakis Institute</u> to increase knowledge around beaver coexistence & watershed resiliency in Alberta. <u>Click here to visit the site</u>.





Riparian Fun Fact: Invasive Weeds

By Kelsey Spicer-Rawe, Riparian Specialist

Hello Spring – it's time to bloom! And if those blooms are of the invasive weed variety and are found in your riparian area, know that you are not alone. 95% of all 2739 sites on streams, rivers, wetlands, and lakeshores Cows and Fish has inventoried between 2001 and 2022 have invasive weeds present. That covers 4.9% of the total area assessed (equivalent to 9.5 quarter sections full of weeds!) by 44 species observed. However, as Lady Bird Johnson said, *"where flowers bloom so does hope"* and the trend in the data is clear, *healthy* riparian sites have fewer weeds than *unhealthy* sites. Luckily, spring is a beautiful time for change and renewal, so take a moment to assess your current riparian management and determine how a change might affect how healthy your stream or wetland is. Reach out to Cows and Fish if you need some inspiration on management solutions that have impact! <u>Click here</u> to visit our contact us page.

Common Invasive Riparian Weeds



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Upcoming Events

Lake Stewardship & Restoration Webinar

Date: May 9, 2023 Time: 7pm – 9pm Location: Online Description: Join the North Saskatchewan Watershed Alliance, Cows & Fish, and the Alberta Lake Management Society to learn about lake stewardship and restoration. Click here to RSVP

Alberta Range Stewardship Course

Date: July 5-6, 2023

Location: Cottonwood Ranch, Medicine Hat **Description:** Course topics include hands-on learning of range management, AUM and stocking rate calculations, range health assessments, and more. <u>Click here to Register</u>

The Original Grazing School for Women

Date: June 14, 2023 Location: Two Hills, AB Description: Join us for the Original Grazing School for Women summer workshop hosted by the County of Two Hills at the Two Hills Centennial Arena.

Click here to Register

Pasture & Riparian Health Training for Ranchers/Farmers

Date: June 27 & 30, 2023 Location: Near Baytree/Bonanza Description: Learn hands-on skills to complete pasture and riparian health assessments to monitor soil and vegetation health. Click here to Register

Pasture & Riparian Health Training for Enviro Field Staff and Agrologists

Date: June 28 & 29, 2023 Location: Near Baytree/Bonanza Description: 2-day training for Environmental Field Staff and Professional Agrologists. <u>Click here to Register</u>

Working With Beavers Symposium

Date: July 13 – July 14, 2023 Location: Holiday Inn & Suites Edmonton Arpt -Conference Ctr, an IHG Hotel 1100 4 Street Nisku, AB T9E 8E2 Description: Join us for two days of knowledge sharing, highlighting some of the great work within the field of beaver coexistence in Alberta and surrounding regions. Click here to Register

Save the Date: The Southern Alberta Grazing School for Women

Date: July 26 & 27, 2023 Location: Longview, AB Description: For more information, please contact Julie Landry-DeBoer at 403-382-8568 or julie.landry-deboer@ab-conservation.com





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This spring, The City of Calgary is talking to Calgarians about the future of our river valleys

Visit an upcoming River Valley Roadshow open house between 4 to 8 p.m.:

 Thursday, April 27
 Old Fire Hall #5 (Poppy Plaza) (1111 Memorial Drive N.W.)

 Thursday, May 4
 Seton Public Library (4995 Market St. S.E.)

 Wednesday, May 10
 Fort Calgary (750 9 Ave. S.E.) *

 Tuesday, May 16
 Four Points Sheraton Hotel Calgary West (8220 Bowridge Cres. N.W.)

"The May 10 River Valley Roadshow open house at Fort Calgary will also feature a panel discussion starting at 6:30 p.m.

Visit **calgary.ca**/**RiverValleys** to learn more about the future of our river valleys and participate in online engagement April 27-June 5.

Calgary's river valleys are essential to our city—they're at the core of our city's identity and its appeal as a place to live, play and do business. The City is planning for the future of our river valleys through the Calgary River Valleys Project. The purpose of the project is to guide how we plan, use, conserve and build in our river valleys, with a focus on coordinated and purposeful land use policies. This is an opportunity for you to voice what is important to you about the city's river valleys, to ensure that those values shape approaches to development, recreation, natural space and flood hazard planning. Engagement is open April 27 –June 5, focused on clarifying priorities and values for our river valley communities.

Participate in the conversation at <u>Calgary.ca/RiverValleys</u>.



Original development of our newsletter was graciously supported by **Alberta Ecotrust Foundation**, along with our many core <u>funders and supporters</u>. As you may know, we rely upon grants to do much of the work we do, so if you want to suggest an opportunity, collaboration, or <u>make a</u> <u>donation</u>, please do! If you haven't already subscribed to our newsletter, <u>click here</u> to sign up.



Have you worked with Cows & Fish in the past?

- Have you wondered how your riparian area scores now?
- Wanted to have an extension event in your local community?
- Have a riparian management story to share?

To increase the broader community's riparian awareness and expertise, we will deliver extension events with local partners, bringing together neighbours and sharing successes. If you are a landowner we worked with in the past, and want to reconnect with us, give us a call or email. Visit our <u>contact us page</u> for more information.

We love hearing from you!

Please contact Norine Ambrose <u>nambrose@cowsandfish.org</u> or any Riparian Specialist, to follow up on any items in this newsletter. For full contact information, visit our <u>contact us page</u>.

Cows and Fish

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A special thank you to our partners

Cows and Fish